

THE EUMETSAT POLAR SYSTEM (EPS): FIRST RESULTS FROM METOP-A

**J. Schmetz, D. Klaes, M. Cohen,
K. Holmlund
and many others**

**EUMETSAT
Darmstadt, Germany**



Content:

- **MetOp-A is the first European operational meteorological satellite in a polar orbit**
- **MetOp is part of the Initial Joint Polar System with NOAA**
- **Successful launch on 19th of October 2006**
- **Instruments: i) common instruments with NOAA, ii) instruments proven through research missions e.g. by ESA, iii) 'first-ever' instruments (i.e. IASI from CNES)**
- **This talk gives a few results (more in Poster Session by Dieter Klaes)**

EPS Contributes to the Global Operational Satellite Observation System



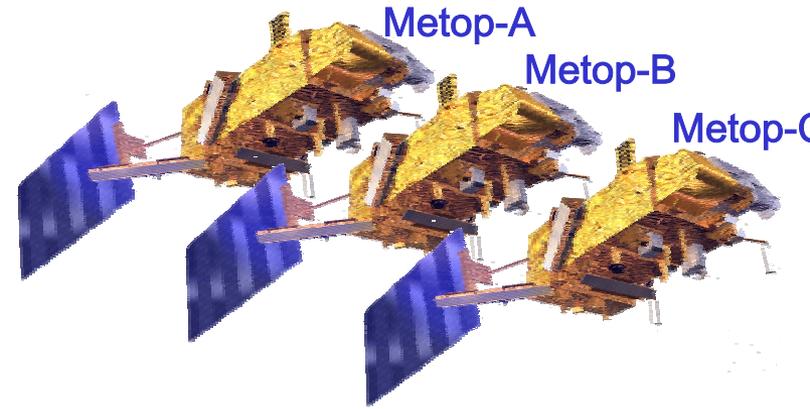
Some Facts about EPS/MetOp



Receiving Station
Svalbard, 78° N



Launch with Soyuz



Service LEOP
ESA-ESOC



Mission control
by EUMETSAT

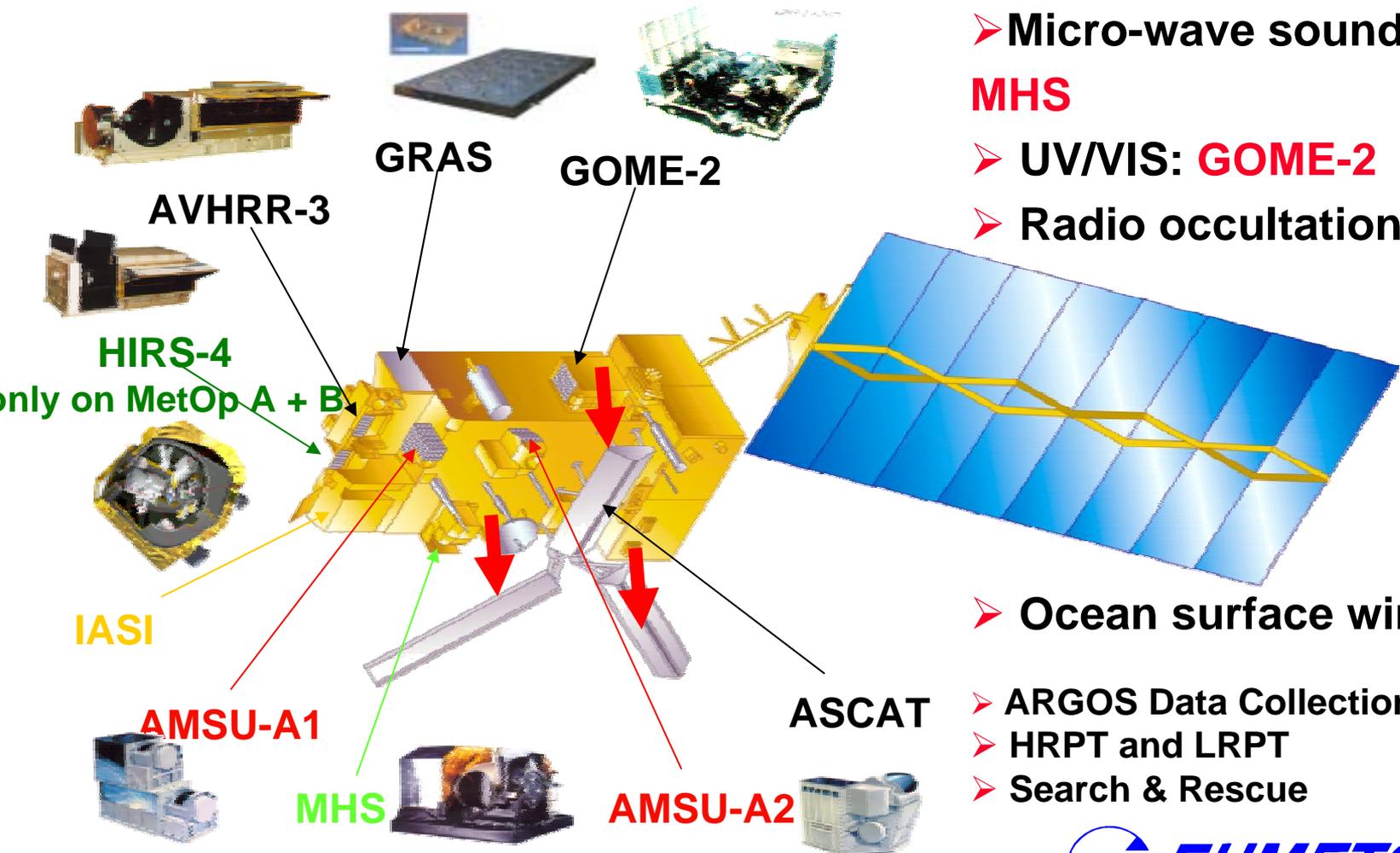


Satellite
Application
Facilities (SAF)

- MetOp-A launched on 19 October 2006
- sun-synchronous at 820 km, 930 a.m.
- MetOp-B and MetOp-C (nearly) recurrent models
- 14 years of operations



MetOp Instruments



- VIS/IR Imaging: **AVHRR/3**
- Infra-red sounding of T, H, etc: **HIRS-4, IASI**
- Micro-wave sounding: **AMSU-MHS**
- UV/VIS: **GOME-2**
- Radio occultation: **GRAS**

- Ocean surface winds: **ASCAT**
- ARGOS Data Collection System
- HRPT and LRPT
- Search & Rescue



EPS/MetOp Services

Global mission : real-time transmission of measuring and sounding data to local user stations.

Global mission : delivery of global measurements to Met Services NOAA within 2¼ hours of the instant of observation (GTS, EUMETCast)

Search and Rescue service (S&R)

ARGOS mission of in-situ observational data.

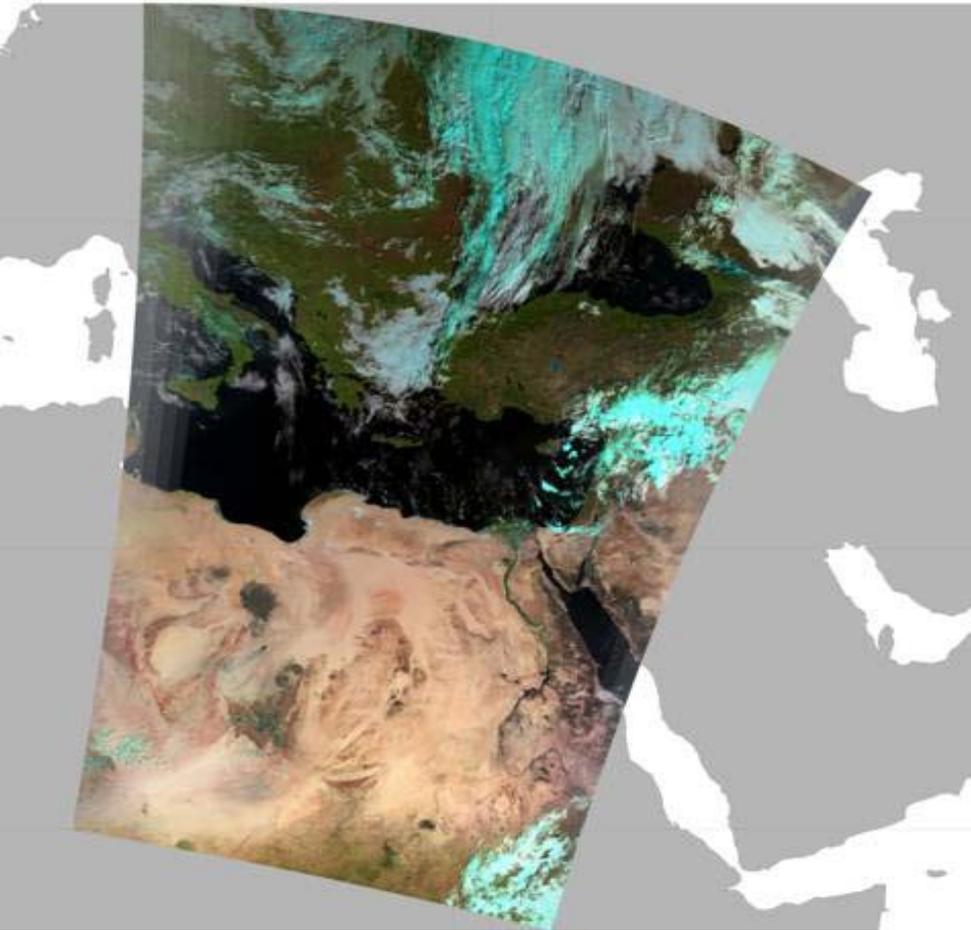
Data Dissemination

EUMETCast: Full NRT data stream
GTS: Subset

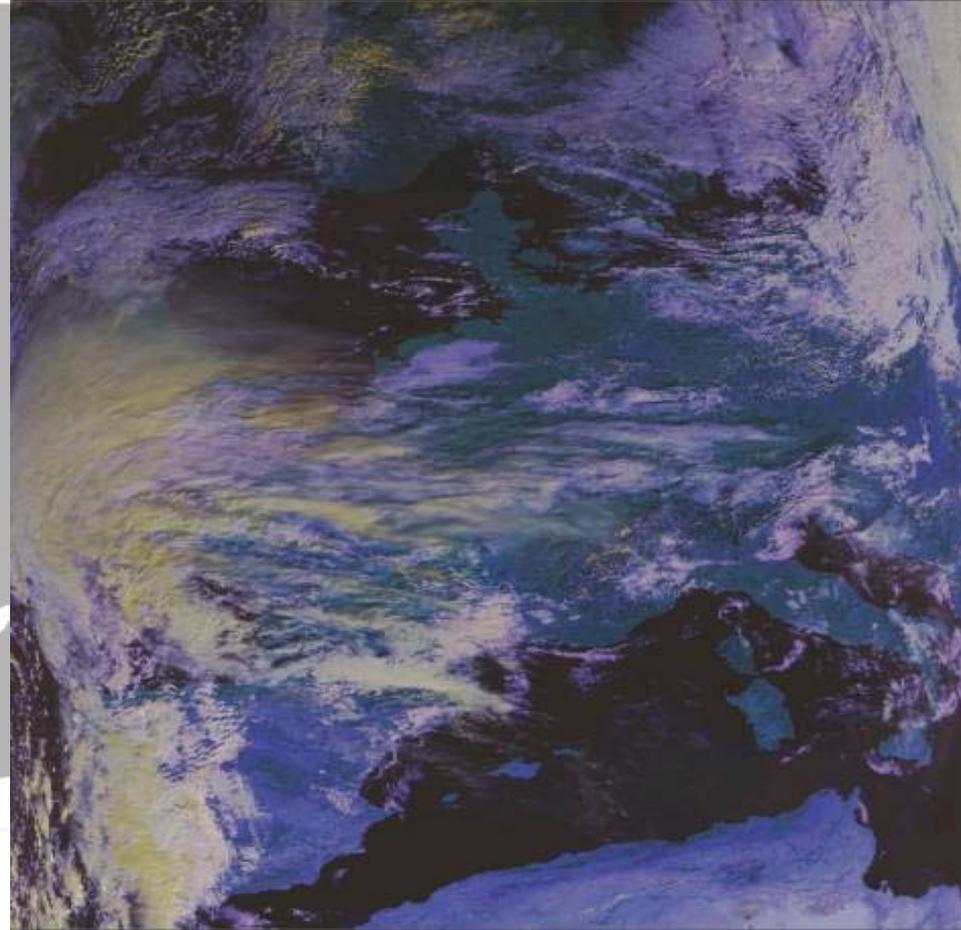
Archiving & Retrieval

All data and products are archived in the **UMARF**

AVHRR on MetOp-A

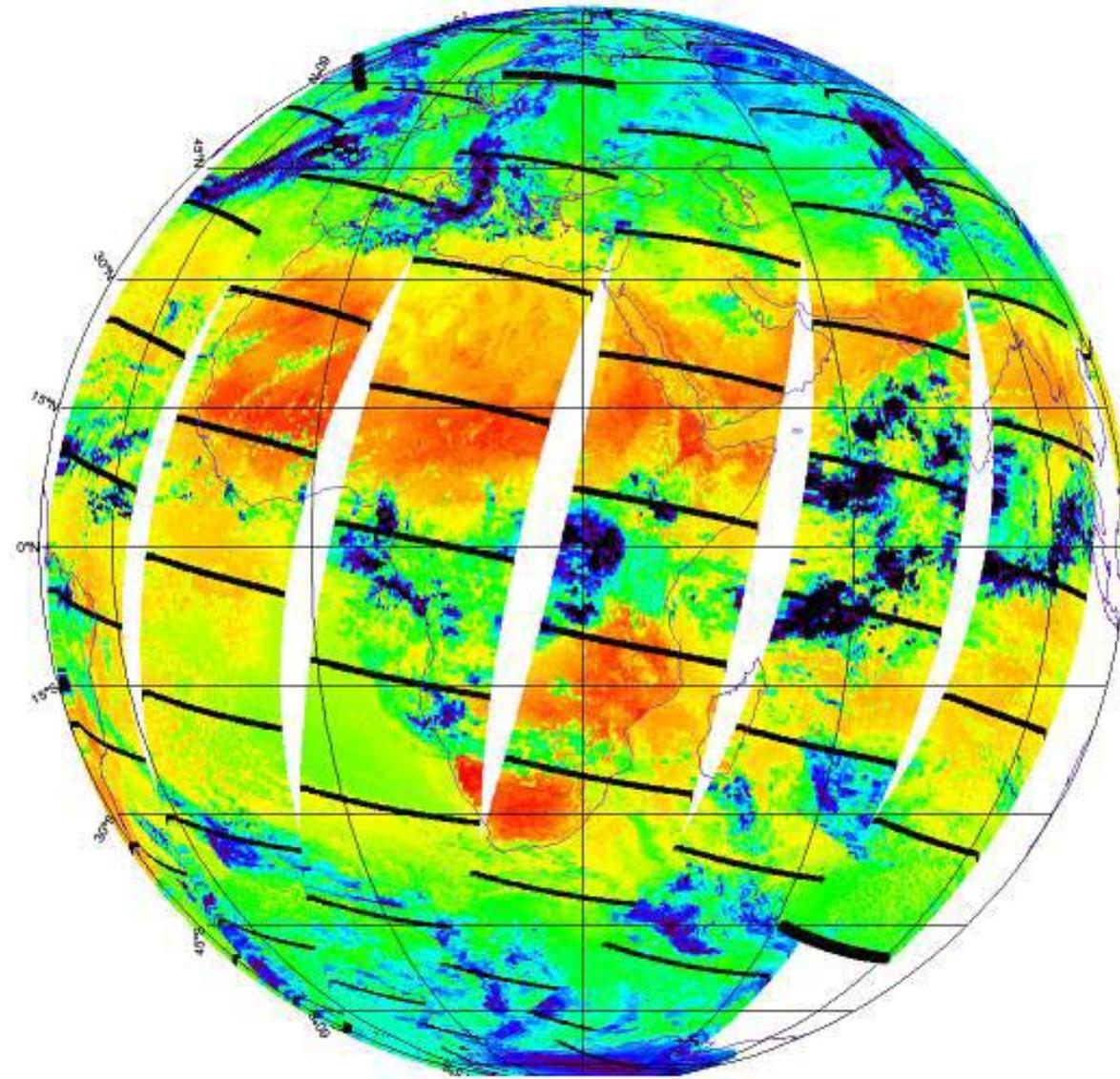


Received at EUMETSAT,
25 Oct 2006

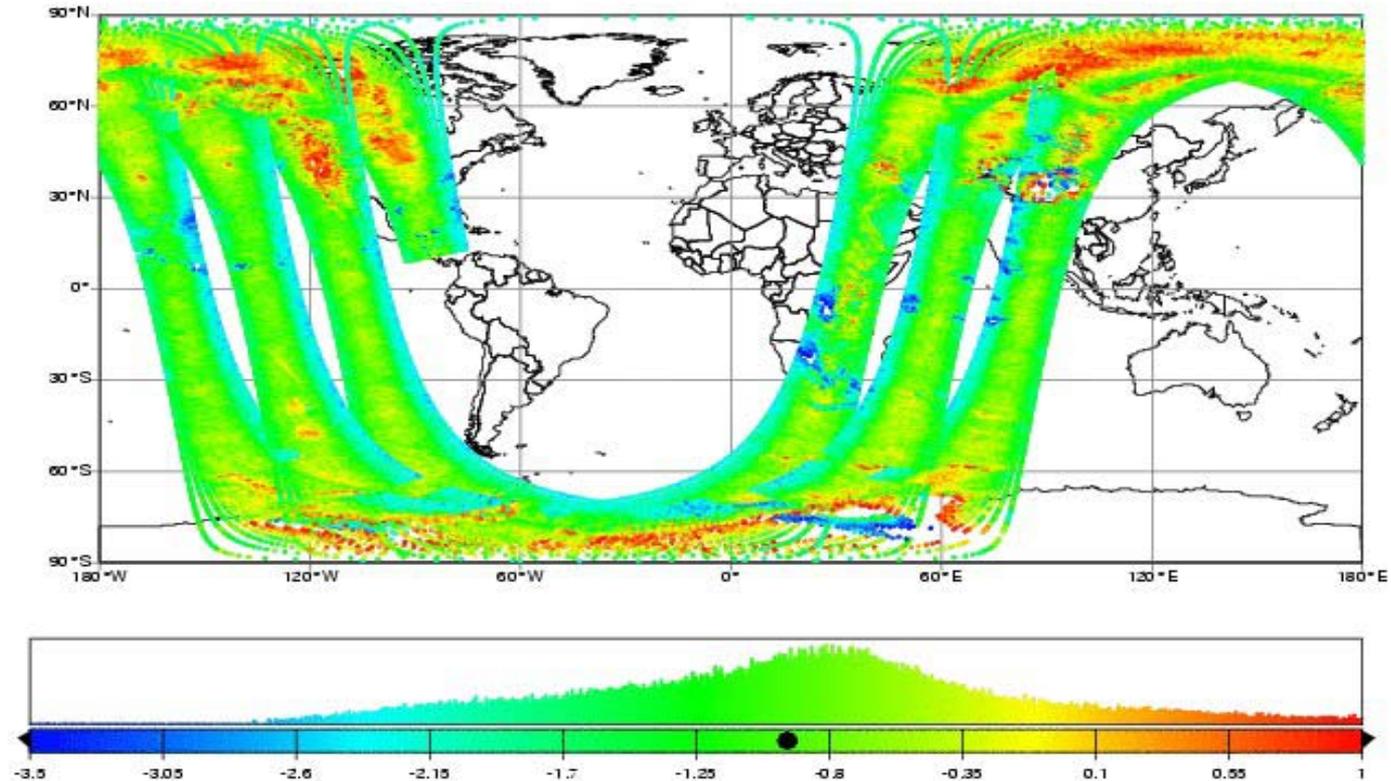


Received at Meteo-France, Lannion

HIRS Channel 8

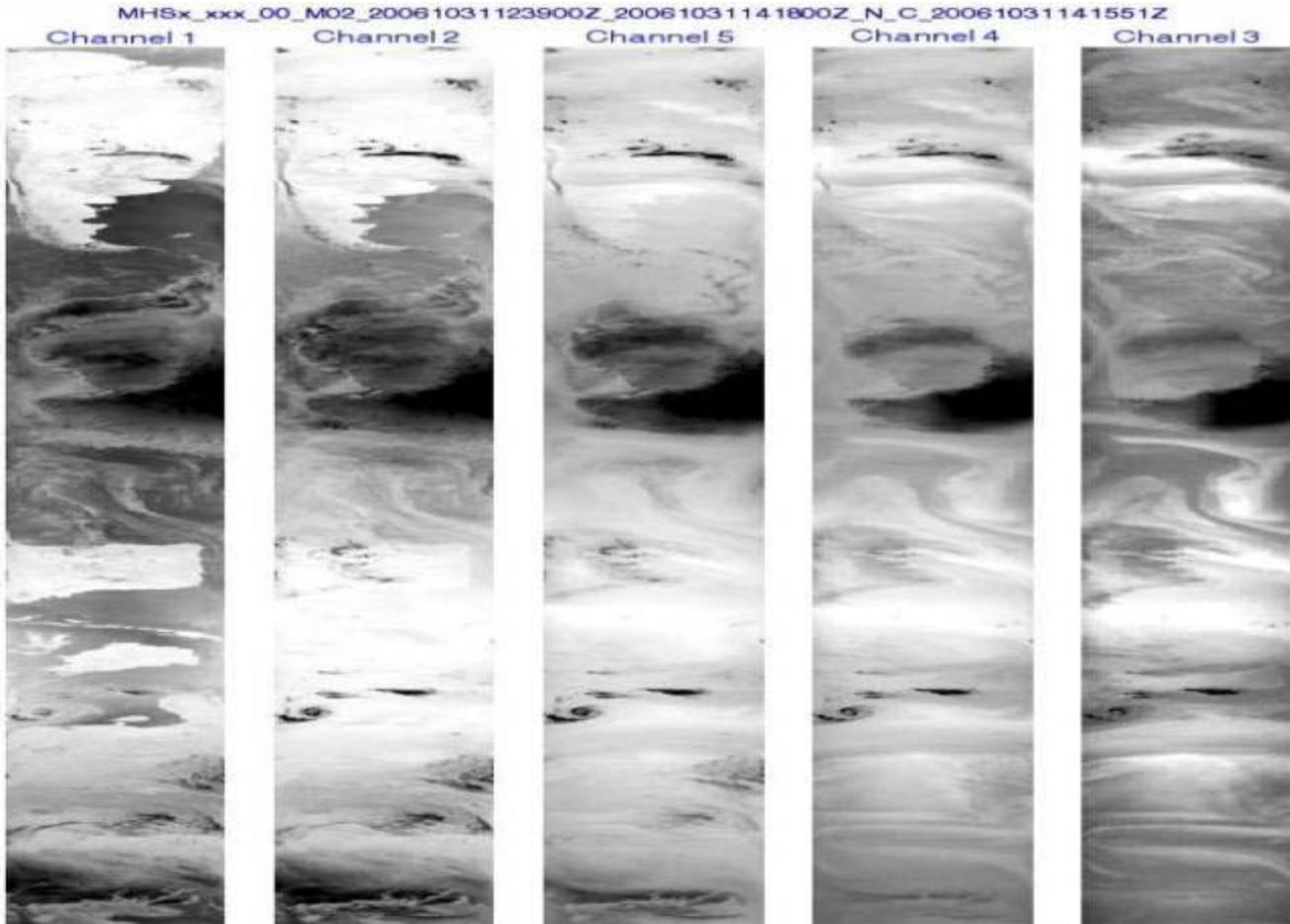


AMSU on MetOp: Observations minus First Guess of ECMWF



MHS (first L0 data)

- Instrument into measurement mode 31 October
- Performance Nominal



Early MHS Noise figures (NEdT) in Kelvin

Channel	Spec	EUMETSAT estimate	Metoffice estimate	NOAA-18 EUM/NOAA	AMSU-B EUM/NOAA
1	1.0	0.19	0.20	0.21/0.32	0.41/0.40
2	1.0	0.39	0.37	0.34/0.53	0.80/0.80
3	1.0	0.52	0.50	0.54/0.50	0.82/0.80
4	1.0	0.40	0.41	0.40/0.41	0.75/0.75
5	1.0	0.36	0.34	0.55/0.55	0.80/0.80

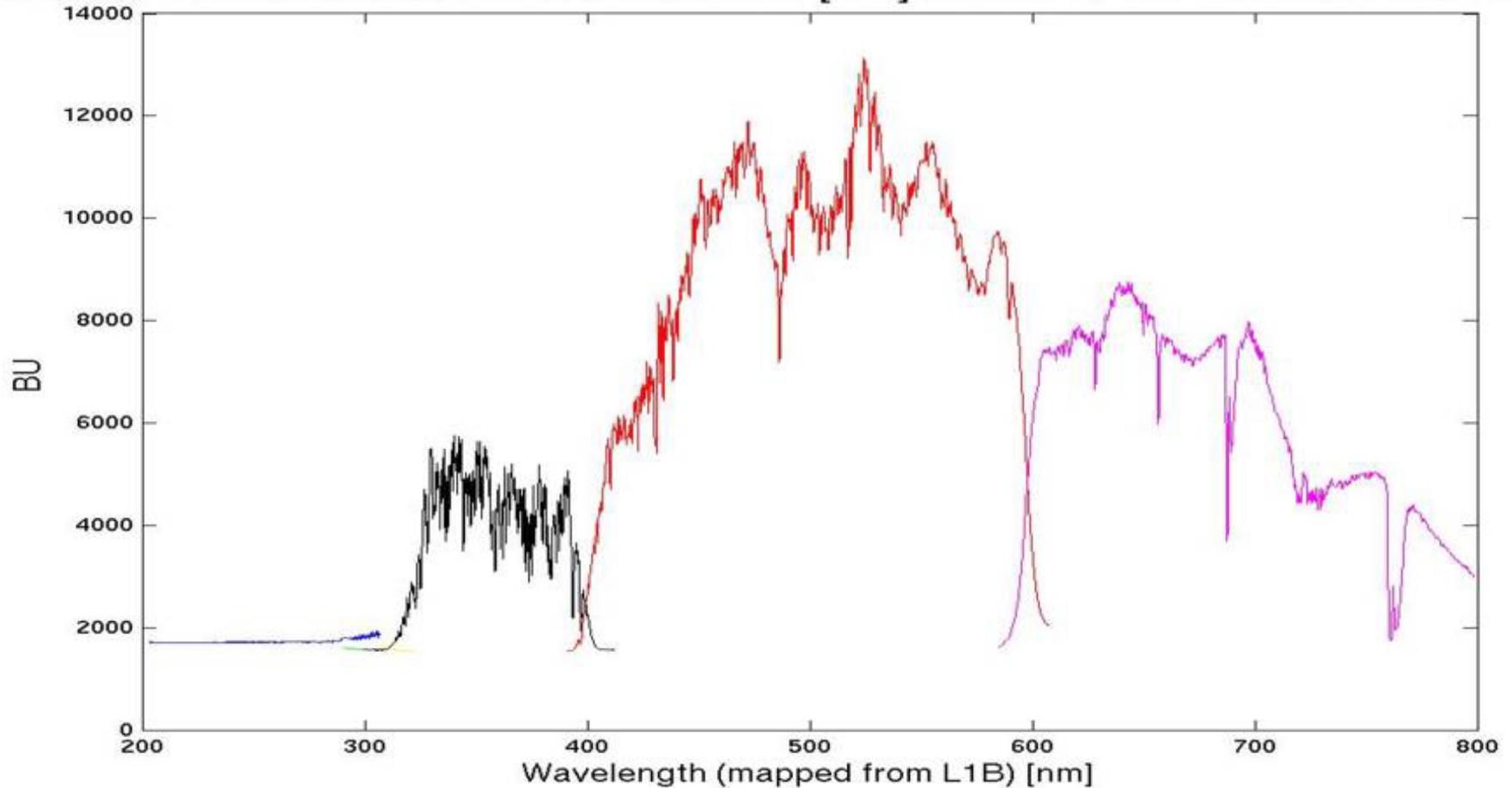


GOME-2

Switched on 27 October

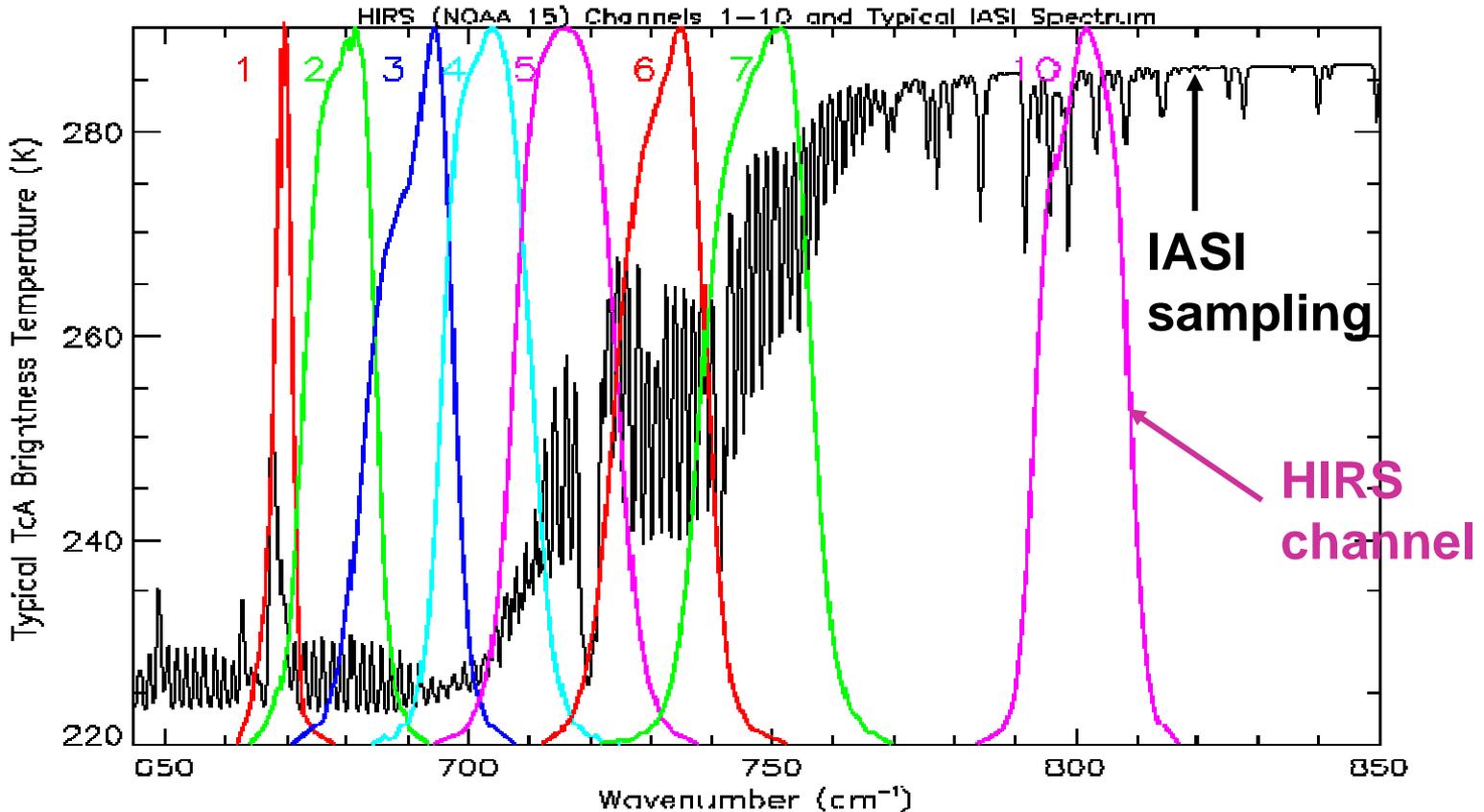
Note: very low signal in band 1a due to current configuration

GOME-2 uncalibrated Level 0 readouts [BU] for MDR 200 at 20061030161158



IASI: a breakthrough in operational sounding

(spectral 'resolution' is $\sim 0.5 \text{ cm}^{-1}$)

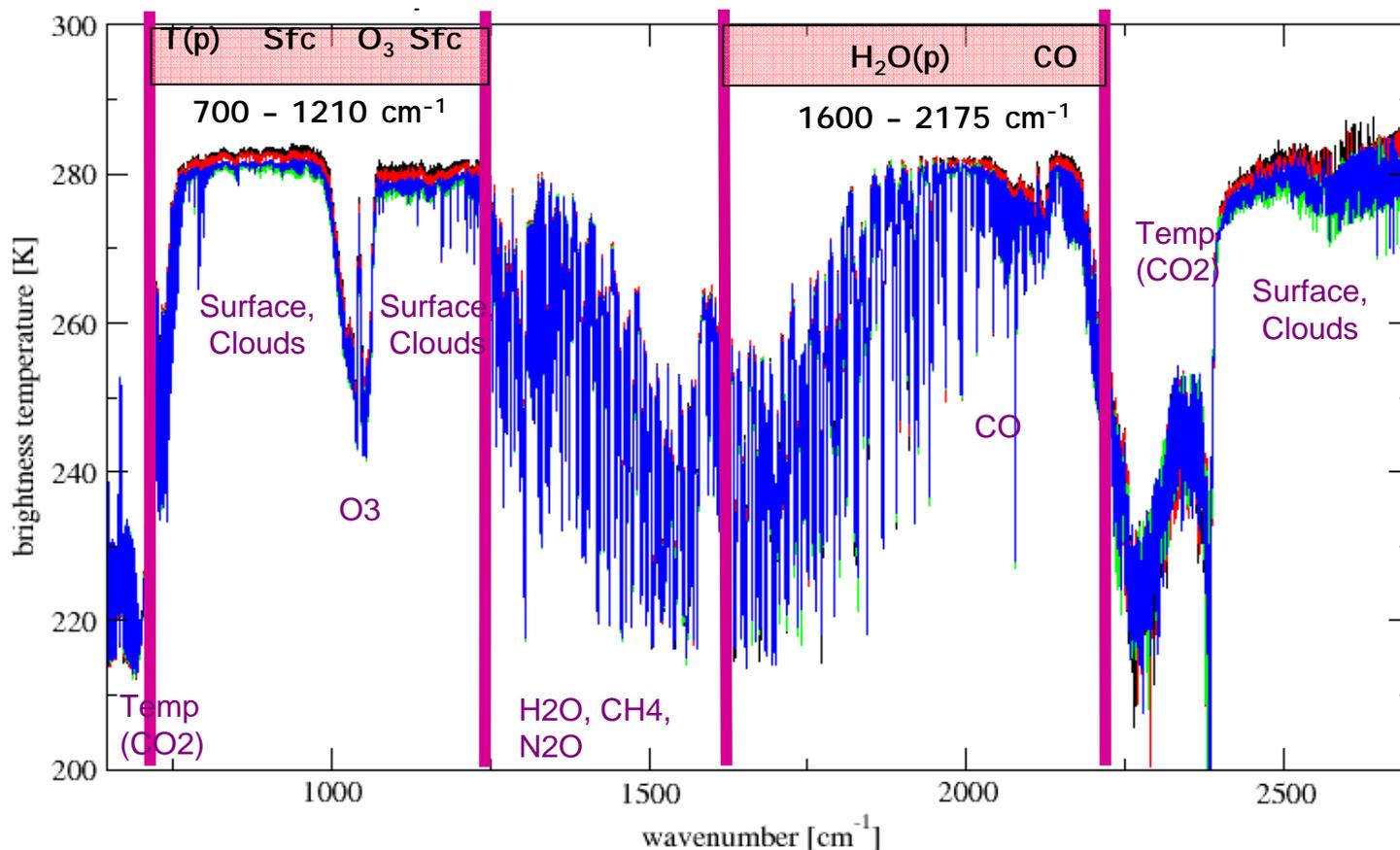


HIRS has 19 channels ⇔ IASI takes 8461 spectral samples



First IASI Level 1C Spectra

29/11/2006, 13:42:11 UTC

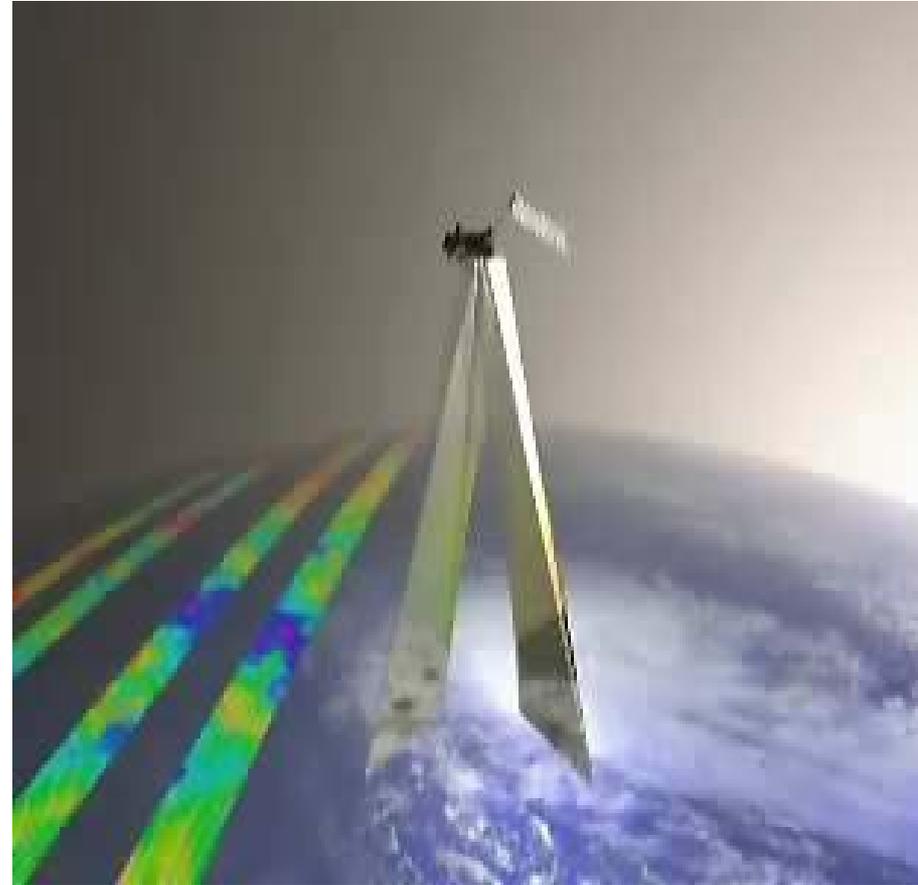
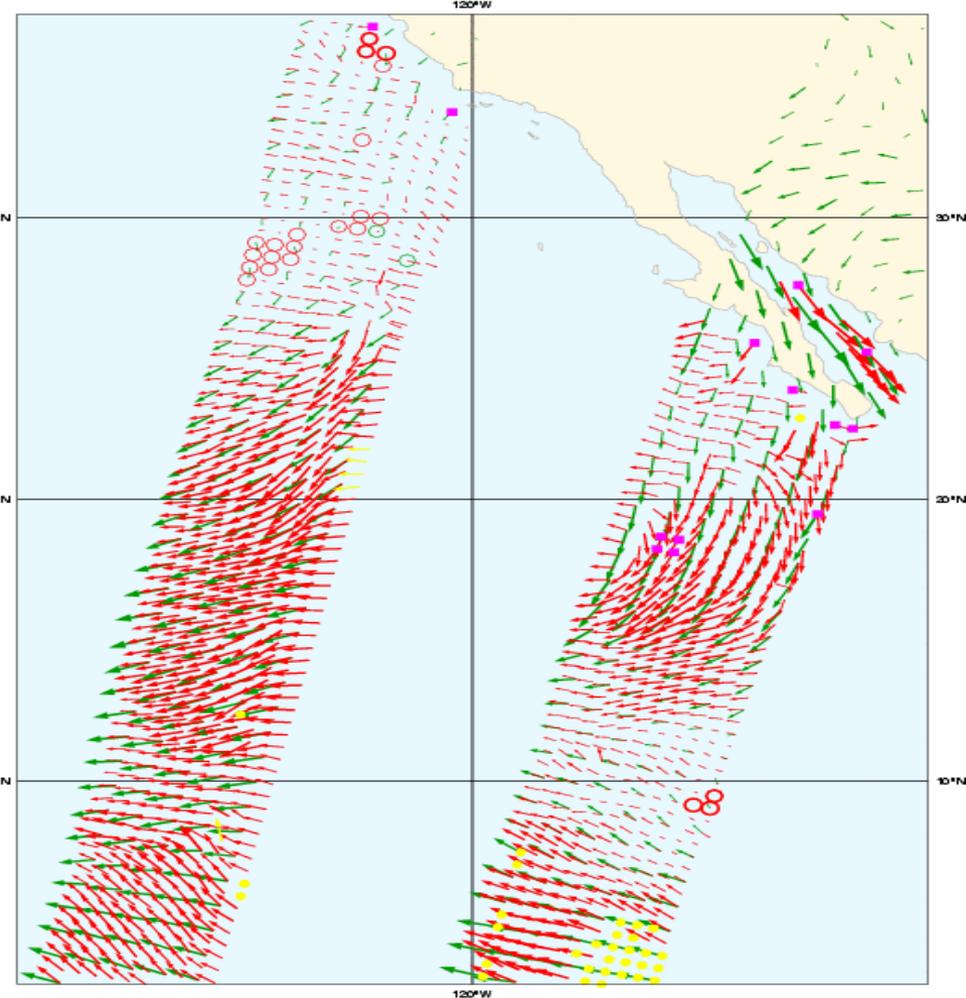


← MTG spectral coverage



Winds from ASCAT compared with ECMWF

ASCAT: 20061027 17:30Z lat lon: 20.00 -120.00



ESA, 2006

Level-2 processing at OSI-SAF, KNMI



Summary

- **EPS/MetOp provides both continuity and progress for space based meteorological applications**
- **All instruments work well**
- **Problem with LRPT**
- **All instruments tested within two months !!**
- **Data and some products are already disseminated (AMSU and MHS used at ECMWF and UK Met Office)**
- => *Important was the flexible and cooperative development of Ground Segment by / with industry***
- **Three MetOp satellites will give 14 years of operations**
- **Advances to Numerical Weather Prediction and Climate Monitoring**
- **Excellent cooperation between ESA, CNES, NOAA and EUMETSAT**
=> *superb team effort*